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REF: TELECON 30 SEPTEMBER 1970
 1. FOLLOWING IS A PROCEDURE TO CONVERT YAW VALUES IN A GEOCENTRIC
 INERTIAL SYSTEM (AS REPORTED IN THE [REDACTED] DATA) TO YAW VALUES
 IN A LOCAL VERTICAL SYSTEM RELATIVE TO THE GROUND TRACK VELOCITY
 VECTOR AS DISCUSSED IN REF.

2. THE MATHEMATICAL TECHNIQUES FOR THIS TRANSFORMATION CONSIST
 OF AN ORTHOGONAL ROTATION OF THE GEOCENTRIC INERTIAL SYSTEM INTO
 THE LOCAL VERTICAL SYSTEM. THE ANGLE OF ROTATION IS COMPUTED AS
 FOLLOWS:

LET: V EQUAL INERTIAL VELOCITY (FPS)
 GAMMA EQUAL FLIGHT PATH ANGLE
 AZ EQUAL INERTIAL AZIMUTH
 THETA EQUAL NADIR LATITUDE
 H EQUAL ALTITUDE (FEET)
 R EQUAL RADIUS OF EARTH (20,855,000 FT.)
 OMEGA EQUAL 0.7292115E-05 (EARTHS ROTATION RATE IN
 RADIAN/SEC) (NOTE EXPONENTIAL NOTATION)

THEN: VP EQUALS V COS(GAMMA) R/CR PLUS H
 VGX EQUALS VP SIN (AZ)-R OMEGA COS(THETA)
 VGY EQUALS VP COS (AZ)

FINALLY:
 A EQUALS ARCTAN (VGX/VGY)-AZ (WHERE THE ARCTAN FUNC-
 TION YIELDS VALUES FROM 0 TO 2 PI)

3. AFTER DETERMINING ANGLE A, THE APPLICATION OF THIS ORTHOGO-
 NAL ROTATION RESULTS IN A CHANGE TO YAW ONLY. PITCH AND ROLL
 ARE NOT Affected. Thus, YAW EQUALS GEOCENTRIC YAW PLUS A.

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END OF MESSAGE

| DETERMINATION | | |
|---------------|-------|----|
| CY | ANGLE | PI |
| 1 | 1 | PI |
| 2 | 2 | PI |
| 3 | 3 | PI |
| 4 | 4 | PI |
| 5 | 5 | PI |
| 6 | 6 | PI |
| 7 | 7 | PI |
| 8 | 8 | PI |
| 9 | 9 | PI |
| 10 | 10 | PI |
| 11 | 11 | PI |
| 12 | 12 | PI |
| 13 | 13 | PI |
| 14 | 14 | PI |
| 15 | 15 | PI |
| 16 | 16 | PI |
| 17 | 17 | PI |
| 18 | 18 | PI |
| 19 | 19 | PI |
| 20 | 20 | PI |
| 21 | 21 | PI |
| 22 | 22 | PI |
| 23 | 23 | PI |
| 24 | 24 | PI |
| 25 | 25 | PI |
| 26 | 26 | PI |
| 27 | 27 | PI |
| 28 | 28 | PI |
| 29 | 29 | PI |
| 30 | 30 | PI |
| 31 | 31 | PI |
| 32 | 32 | PI |
| 33 | 33 | PI |
| 34 | 34 | PI |
| 35 | 35 | PI |
| 36 | 36 | PI |
| 37 | 37 | PI |
| 38 | 38 | PI |
| 39 | 39 | PI |
| 40 | 40 | PI |
| 41 | 41 | PI |
| 42 | 42 | PI |
| 43 | 43 | PI |
| 44 | 44 | PI |
| 45 | 45 | PI |
| 46 | 46 | PI |
| 47 | 47 | PI |
| 48 | 48 | PI |
| 49 | 49 | PI |
| 50 | 50 | PI |
| 51 | 51 | PI |
| 52 | 52 | PI |
| 53 | 53 | PI |
| 54 | 54 | PI |
| 55 | 55 | PI |
| 56 | 56 | PI |
| 57 | 57 | PI |
| 58 | 58 | PI |
| 59 | 59 | PI |
| 60 | 60 | PI |
| 61 | 61 | PI |
| 62 | 62 | PI |
| 63 | 63 | PI |
| 64 | 64 | PI |
| 65 | 65 | PI |
| 66 | 66 | PI |
| 67 | 67 | PI |
| 68 | 68 | PI |
| 69 | 69 | PI |
| 70 | 70 | PI |
| 71 | 71 | PI |
| 72 | 72 | PI |
| 73 | 73 | PI |
| 74 | 74 | PI |
| 75 | 75 | PI |
| 76 | 76 | PI |
| 77 | 77 | PI |
| 78 | 78 | PI |
| 79 | 79 | PI |
| 80 | 80 | PI |
| 81 | 81 | PI |
| 82 | 82 | PI |
| 83 | 83 | PI |
| 84 | 84 | PI |
| 85 | 85 | PI |
| 86 | 86 | PI |
| 87 | 87 | PI |
| 88 | 88 | PI |
| 89 | 89 | PI |
| 90 | 90 | PI |
| 91 | 91 | PI |
| 92 | 92 | PI |
| 93 | 93 | PI |
| 94 | 94 | PI |
| 95 | 95 | PI |
| 96 | 96 | PI |
| 97 | 97 | PI |
| 98 | 98 | PI |
| 99 | 99 | PI |
| 100 | 100 | PI |

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ADVANCE CY
 SANITIZED
 WITH TEXT

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